Bilemia:

An Unusual Complication of Bile Ducts Stones

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THE SUDDEN OCCURRENCE of a fistula between the hepatic duct and the portal vein in a patient with choledocholithiasis, and the consequential massive bilemia resulting in shock and death has not, so far as we are aware, previously been reported in the literature.

Post-mortem examination of jaundiced patients have on occasion demonstrated microscopic pulmonary bile emboli, but these have never been considered as the cause of death.[5] Conversely the finding of pulmonary bile emboli and sometimes even liver fragments following hepatic trauma[1,2] and liver biopsy[4] have been reported as the cause of death.

Case Report

A 72-year-old woman was admitted with a 3-day history of severe pain in the right upper quadrant and jaundice. During the year prior to admission she had suffered intermittent attacks of pain in the same area associated with fever, but no jaundice. Examination revealed an elderly lady in good general condition, moderately jaundiced, and afebrile. The abdomen was generally tender with maximal tenderness in the right upper quadrant. There was no rigidity or rebound tenderness and a mass was not palpable. Bowel sounds were present. A straight X-ray revealed radiopaque gallstones. Laboratory findings: Hb 13.5G, Hematocrit 49.8, W.B.C. 12000, Glucose 116, and the blood urea 63. The serum electrolyte were normal. The serum bilirubin was 5.7 mg. of which 5.2 was direct. A conservative regimen was decided upon. On the second day she suddenly went into severe shock which was believed to be either due to overwhelming sepsis or acute fulminating pancreatitis. Despite vigorus resucitative measures she died within 5 hours of the onset of shock. Post-mortem revealed a perforation of the left hepatic duct into the portal vein caused by a small stone which was found at the site of the perforation (Fig. 1). An extensive area of the portal vein wall was bile stained, and bile had collected around the site of the fistula. In addition extensive hematoma was present in the left lobe of the liver (Fig. 2). Two small stones were found impacted at the lower end of the common bile duct; the gallbladder contained many small stones. Bile pulmonary emboli were not found.

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Comment:

A fistula between the bile ducts and the blood vessels is not an extreme rarity following trauma, but in such cases blood flows into the biliary system resulting in hemobilia. Bilemia, due to the flow of bile into the circulation following the establishment of a non-traumatic "fistula" has not, so far as we are aware, been previously recorded. Following the occurrence of a fistula between the bile duct and the portal venous system it is to be expected that blood will flow into the biliary system because of the higher pressure in the portal vein. However, in the case described above the pressure in the biliary system would be higher than that in the portal system because of the obstruction in the lower end of the common bile duct, caused by the impaction of calculi.

It is not certain whether the severe shock and death was due to the presence of bile alone in the circulation. Bile salts are known to be harmless if given intravenously. Brown and Walsh[3] injected 4 cc. of human bile intravenously into a large rabbit and death resulted in about 1 minute. Post-mortem examination revealed the presence of pulmonary bile emboli. In the case described

FIG. 1. Inferior surface of hilus of liver. Left hepatic bile duct is on the left (left to the needle), and upwards. Right to needle is the portal vein with hematoma around it. Site of perforation is immediately above the needle. Stones were taken out during photography.

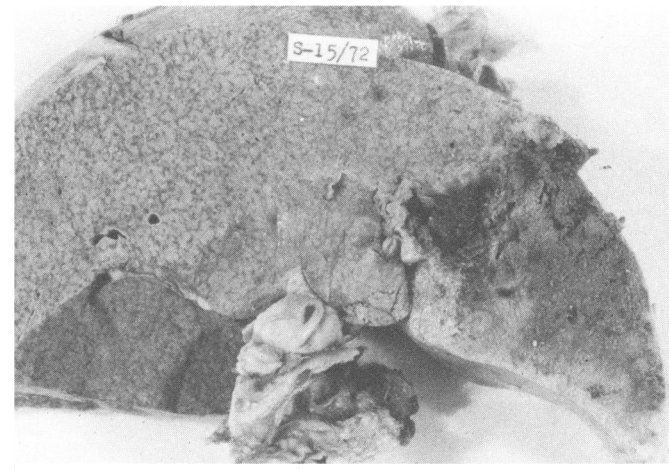

FIG. 2. Extensive hematoma in the left lobe of the liver, around the site of perforation.

above there exists also the possibility that the bile was infected as a result of common duct obstruction. It is to be noted, however, that during the 2-day period of hospitalization prior to the onset of shock, she had remained entirely afebrile.

It is of interest to note that removal of the intravenous catheter after death was followed by prolonged bleeding of bile stained blood.

It remaines to be stressed that the "fistula" between the hepatic duct and the portal vein resulted from a recent perforation which must have occurred only hours before death. The hematoma around the site was clearly of recent origin, as was the biliary leakage into the surrounding tissues. It is postulated, therefore, that shock was due to the sudden catastrophic flooding of the circulation with bile.

Summary

An unusual fatal case of perforation of the hepatic duct into the portal vein by a gallstone is reported. The possibility that death resulted from bilemia is discussed.

References

1. Brown, C. Y. and Walsh, G. C.: Fatal Bile Embolism Following Liver Biopsy. Ann. Intern. Med., **36**:1529, 1952.
2. Doyle, W. F. and Gray, J. M.: Bile Embolism Following Hepatic Trauma. Arch. Pathol., **85**:559, 1968.
3. Hendren, W. H., Warshaw, A. L., Fleischli, D. J. and Bartlett, M. K.: Traumatic Hemobilia: Non-operative Management with Healing Documented by Serial Angiography. Ann. Surg., **147**:991, 1971.
4. Johnston, E. H.: Liver Embolism to the Lung as a Complication of Trauma. U.S. Armed Forces Med. J., **10**:1143, 1959.
5. Mehta, S. and Rubenstone, A.: Pulmonary Bile Thromboemboli. Am. J. Clin. Pathol., **47**:490, 1967.